Hi! My name is Hayley, and this morning I would like to share with you what it was like to study programming at high school. So here is some brief background about myself; I have just finished year 13 at Palmerston North Girls' High School, and next year I am probably moving here, to Christchurch, to study a Bachelor of Science, Majoring in Computer Science and Statistics.

I should mention here that I do have other interests outside of computers! I am a real person! Up until a couple of weeks ago I have volunteered at the Arohanui hospice every friday, I enjoy jogging occasionally, I really like listening to the podcasts from The Edge Radio Station, and I had a part time job for most of high school. But yes, for the most part, my passion for computer science is what make me, me.

When I tell people that I'm into programming, the first thing they say is "oh cool! Are your parents programmers?" My standard answer was, and actually still is, "haha no, my parents are still grappling with the concept of email." I had never given the question much thought, until I started to notice, that everyone else seemed to have a connection to a someone in industry, whether it was a relative, family friend, or neighbour. It wasn't until I came along that my family joined the network. So no, it wasn't my parents that got me into computer science, in all honestly, they are actually unsure as to what I am doing here this week. The only way that I was going to be exposed to computer science was going to be through school.

It wasn't actually until year 9 when I first exposed to computer science. I was taught programming concepts in Scratch, which is a pretty common language to use in high schools these days right? I still remember my very first program, it was an animation of a butterfly moving through a forest, it was cool, music and everything. I was so proud of it because I remember spending hours making the timing perfect. So right from the beginning, I was interested in computers, my teacher knew instantly, but I didn't quite realise it until some time later. At the end of year 11, I had a conversation with my teacher about my future plans. I told her that I was going to leave school after year 12, because for the particular career I had in mind, I didn't necessarily need year 13. It was only recently that I found out that this conversation was somewhat upsetting for my teacher, because she could see my potential in programming, and I couldn't.

Then everything changed last year, in year 12. I entered a competition for which I gave a presentation on the importance of teaching Computer Science in high schools. As I was researching for that presentation, it became apparent to me that it was ridiculous to give a presentation about encouraging more students into the industry, if I wasn't headed there myself. And the more research I did, the more I started to think, why aren't I headed into this industry? There are plenty of jobs, there's usually an awesome work environment, it pays well, and most importantly, I love programming! So finally, I decided it was time to reconsider my career plan.

What cemented this change, was attending the NCSS Summer School in January this year. This is a 10 day computer science summer camp, hosted by the University of Sydney. It was awesome, I got to spend 10 days with about 150 other students, teachers, tutors, industry mentors, and lecturers, all of whom had one thing in common, they all had a passion for computer science, and I found that I fit into this group of people really well.

Upon my return, is when I decided that it was unfair that it took so long for me to realise that I have an aptitude for computer science, so change was going to happen, I went back to school with the goal of increasing the awareness of our subjects existence, and I wanted it to be recognised as a viable subject choice and potential career path. Yes, this was an ambitious goal, but I can be an extremely motivated person at times.

I became deeply involved in the inner workings of the school, partly because I was actually the Computing and Digital Technologies Prefect at my school, so I used this opportunity to share my experiences with other students to show them what is ahead of them should they chose a computer science path. I organised computer themed events, formed a team of students to take care of the technical side of the events that take place in the school hall, created Nerds in Conversation (or 'NIC'), a programming tutoring group, and organised guest speakers. I think that the most valuable thing I did as prefect was get the guest speakers. I hadn't worked in industry, therefore I understood that it could be hard for students to believe me when I told them about how awesome it is, since I hadn't been there myself. It made a big difference when they heard it directly from the people who make the industry what it is. And we were really lucky to get a wide range of speakers, we had people from small local companies, the founders of Grok Learning/NCSS Challenge/NCSS Summer School, and even someone from industry giant, Google.

As well as this, I also created an internet safety campaign as part of the Google Web Rangers Competition, attended conferences, made a personal website, and I joined Gather Workshops as a Python presenter. But probably the biggest project I undertook this year was making an app. I wanted to code this app myself, rather than using something like app inventor, and I decided to also use the opportunity to learn more about software engineering. What I wanted to learn was well outside of the scope of the high school curriculum, so I reached out to Massey University for help. Every couple of weeks I would spend an afternoon talking to lecturers about my project. They were incredibly supportive, and always willing to help and give guidance.

This app was my project for Scholarship Technology, because somewhere in my crazy life I was also studying Level 3 NCEA. So besides computer science and scholarship technology, the subjects I took were Chemistry, Physics, Calculus, Statistics, and Scholarship level Calculus and Statistics. Good thing I like maths. Another really common question that I am asked, and possibly something you are wondering now, is "how do you find time to do all of this?" Well, it's my hobby. It has never really felt like extra work, in fact, I'm not quite sure what it was that I used to spend my time doing before I discovered computer science. In

saying that, everything I have done this year did require a substantial amount of time, effort, and focus. As often as possible, I would be in school just to use the whiteboards to map out ideas and algorithms for code that I was working on. Then a few months ago, it occurred to me that at my dads work there were two rooms upstairs that were pretty much uninhabited, so I decided to claim one, and a couple days later I created what my dad likes to refer as to as my “commercial premises.” It became my own space to work, and many hours have been spent there since.

Upon reflection, I guess I would say that I took a different approach to year 13 than most other students. NCEA was on the bottom of my priority list, because rather than putting all my energy into my studies and becoming another statistic, I was going to focus on what I was interested in, and put every effort into showing other students the opportunities that are out there. The hardest part about computer science for me personally was actually realising that a) it exists and b) it is a viable career option, and I never want another student to find it as difficult as I did to realise this, but unfortunately, I’m sure that there are plenty of students who will not realise until after high school, or who may never realise at all.

I am so incredibly thankful that I went to a high school that offered a computer science course, and there is no doubt in my mind that if it wasn’t for my teacher’s dedication, hard work, and encouragement, I would not be here today. So thank you, Mrs Danalize van der Spuy, for everything you have done for me, words cannot express how grateful I am to have had you as a teacher at high school.

Next week I start an internship in a computer company in Wellington, in January I’m spending two weeks in Sydney for the second stream of NCSS, and like I said earlier, next year I’ll be back here studying Computer Science. After that who knows where I’ll end up, ideally, I want to work for a large company where the work I will do will affect everybody on a daily basis, and I know that I am always going to trying to encourage new students to learn to program and/or to join the industry.